# A b s t r a c t

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| T i t l e | The characteristics of cefotaxime-resistant *Escherichia coli* isolated with different breakpoints |
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〔summary〕

The effectiveness of antimicrobial agents decreases with the increase in antimicrobial-resistant bacteria due to the wide use of antimicrobial agents. The spread of bacteria carrying *bla*CTX genes coding extended-spectrum beta-lactamases (ESBLs) is of concern. More strains were recently categorized into resistant bacteria since the breakpoints for the resistance to beta-lactams were revised by Clinical & Laboratory Standards Institute (CLSI, US) in 2012. In this study, the effect of the revision by CLSI on the characteristics of the environmental isolates in terms of the resistant spectrum and genotype.

The environmental samples were taken from the Tama river and from effluents from wastewater treatment plants. The susceptibility to third-generation cephalosporins and fluoroquinolones was examined by the Kirby-Bauer disk-diffusion method. The genes responsible for the resistance were examined by PCR.

The ratio of resistant *E. coli* to cefotaxime (4 ug/L, the newer breakpoint) among the total population in the effluents from the wastewater treatment plant of the university was 0.92-3.08%, while that to cefotaxime (64 ug/L, the older breakpoint) was 0.0017 - 0.012%. In the case of the river water sample, the ratios were 2.1 - 6.15% (the newer breakpoint) and 0.12 - 0.18% (the older breakpoint). The resistant isolates by the newer breakpoint had wider resistant spectrums than those by the older breakpoints. The isolates by the older breakpoints carried *bla*CTX genes with higher frequency, while no significant differences were found in the ratio of ESBL-positive strains among the resistant isolates by both breakpoints.